SX-560
Intelligent Programmable WLAN Module

802.11a/b/g Wireless Solution for OEM Embedded Applications

High Performance, Low Power Usage, and Enterprise Security

The Silex SX-560 embedded WLAN Module is a high-performance low-cost solution that supports all of the major wireless networking standards – 802.11a, 802.11b, and 802.11g. Its low power consumption and a compact form factor make it ideal for battery powered portable devices, but its extensive capabilities make it suitable for almost any embedded WLAN application.

The SX-560 handles all of the TCP/IP and 802.11 network processing, so it provides a fast and easy way to add wireless networking capabilities to your device. Because it offloads the network processing, the processor on your device operates more efficiently and there is a little or no change required to your code. As a result, you increase your bottom line by reducing your time to market, making your products more competitive, and lessening the need for in-house wireless expertise.

Key Advantages

SX-560 key competitive advantages include:

- Very low power consumption (ideal for battery operated systems)
- Linux operating system with user programmability
- Enterprise level management and security

Features

Low Power Consumption. The SX-560 uses a minimum amount of power during transmitting and receiving, and its power management reduces power usage during periods of inactivity.

Linux Operating System with User Programmability. The SX-560 uses the Linux operating system and is designed to allow users to easily add new features. With a 200MHz 32-bit processor, 16MB of RAM and 8MB of flash memory, the SX-560 has plenty of capacity to handle complex user applications.

Highly Secure The SX-560 includes enterprise-level security features including access control lists, complete protocol and application enable/disable control, read and write configuration passwords, and SNMP community name configuration. It features the most extensive wireless security in the industry, including 802.1x Extensible Authentication Protocol (EAP) with all major EAP types and WPA2, WPA2-PSK, WPA, WPA-PSK, and WEP wireless security.

Enterprise Management. Silex's ExtendView management software provides advanced features such as the ability to monitor, configure and update multiple SX-560 modules simultaneously over the network. Management capabilities are also available via TELNET, SNMP, web browser, and a dedicated serial console port. For added control, AT commands and console commands can also be sent via the two serial ports.

Two Serial Ports Plus Dedicated Console Port. The SX-560 provides two serial ports that can used to connect to RS-232 or UART interfaces in your device. These ports operate at speeds up to 921Kbps with modem controls. A third serial port is also included for use as a dedicated console port.

USB, SPI and IIC ports. The USB V1.1 host port supports speeds up to 12Mbps, while the SPI port operates at 25MHz (the optional SX-Virtual Link Windows/Macinosh software/firmware is available to access the USB port; user-written Linux software is required for the SPI and IIC ports).

Serial Port Emulation Software. The SX-560 includes software that emulates a standard Windows COM port (for example, COM3). This allows you to use your existing Windows applications without change.

General Purpose I/Os (GPIOs). The 9 GPIOs can be used for custom applications like driving LEDs and sensing switches, or for modem signals in conjunction with the serial ports.

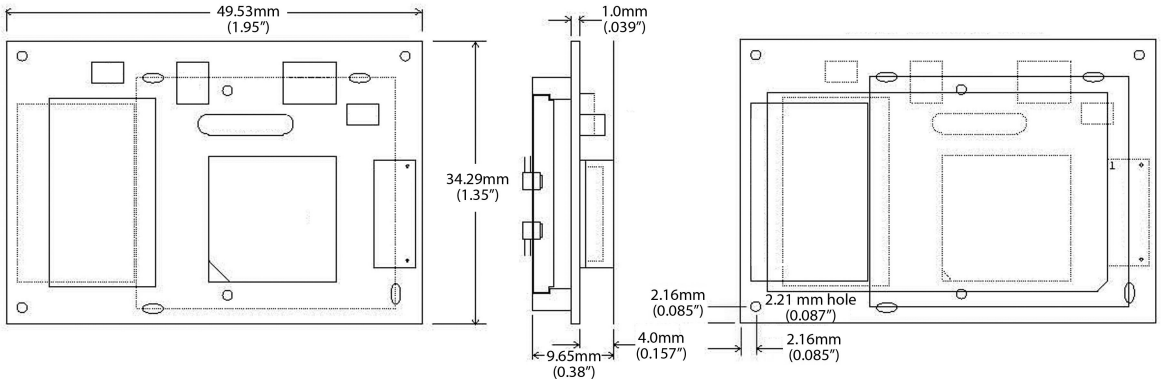
SNMP Traps and E-mail Alerts. Users can be notified immediately of any status changes on the GPIOs or serial ports via SNMP or E-mail.

Antenna Diversity. The SX-560 has two U.FL antenna connectors for improved quality of transmission and reception.

Easy to Use. The SX-560 features a compact form factor with through-holes for flexible mounting options. A 40-pin connector header for the serial and GPIO signals simplifies the hardware interface to your device.

An available developer's kit provides the required hardware, software tools, and documentation for OEM customers to easily integrate the SX-560 module in their equipment.

OEM Module Diagram



TOP COMPONENTS (VIEW FROM TOP)

BOTTOM COMPONENTS (VIEW FROM TOP)

OEM Interface

The OEM interface allows OEMs to add functionality via a daghtercard. Power is also input through this interface. This is a 40-pin 0.5-mm pitch surface-mount header (Hirose DF12-40DS-0.5V or equivalent). Pin assignments are shown below.

Pin	Signal	Pin	Signal
1	RESETI-	2	GPIO_0
3	GPIO_1	4	GPIO_2
5	GROUND	6	+3.3VDC
7	GPIO_3	8	GPIO_4
9	GPIO_5	10	GPIO_6
11	GPIO_7	12	GPIO_8
13	GPIO_9	14	TXD0
15	GPIO_10	16	CTS0-
17	GROUND	18	+3.3VDC
19	USB+	20	RTS0-
21	USB-	22	RXD0
23	+3.3VDC	24	GROUND
25	SPI_CS-	26	TXD1
27	SPI_CLK	28	CTS1-
29	GROUND	30	+3.3VDC
31	SPI_MOSI	32	RTS1-
33	SPI_MISO	34	RXD1
35	+3.3VDC	36	GROUND
37	IIC_SDC	38	TXD2
39	IIC_SDA	40	RXD2

Specifications

Wireless Interface
802.11a/b/g (54Mbps/11Mbps)

Serial Ports
2 x UART with TXD, RXD, RTS, CTS and up to 921.6Kbps per port; 3 GPIOs are configurable as DTR, DSR, and DCD on port 1

USB Port
USB V1.1 host (12Mbps)

SPI Port
25MHz; compatible with 2-ch Serial Peripheral Interface Protocol V2.11; Master-Slave, Slave-Master, and Master-Master modes of operation

Console Port
A dedicated UART console port is available for configuration

General Pupose I/O Signals
9 general purpose signals are accessible via the OEM header (external pull-ups are required for customization)

Power
Power Consumption (3.3V±10%; no load on I/O ports or GPIOs)
Maximum: 350mA Average: 238mA
Idle: 198 mA Sleep: 73mA
Minimum: 73mA (connected to access point in powersave mode; SX-560 will wake up upon data received in UART or other interrupt)

Environmental
Temperature
Operating Temperature: 0° to +55° C (commercial version); -20° to +80°C (extended temp version)
Storage Temperature: -40° to +85° C
Maximum temperature change per hour: 20° C

Relative Humidity
Operating: 20% to 80% non-condensing
Storage: 10% to 90% non-condensing

Altitude
Operating 3.1km
Storage 9km

Standards Compliance
FCC (Part 15 Subpart C) and IC modular certification; RS-232 232, IEEE 802.11a/b/g, RFC 2217, RoHS; designed for compliance with FCC, CE, VCCI Class B, and EN60601 EMC standards, and CE and TELEC wireless standards

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